

WEST VIRGINIA ALIGNMENT FOR NIH SUPPLEMENT HUMAN GENETIC VARIATION

HUMAN GENETIC VARIATION		
West Virginia Science Content Standards and Objectives – Grades 9 & 10		
Activity	Standard	Objective
3, 4	SC.9.1.1 SC.10.1.1	Formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results.
2, 3, 4, 5	SC.9.1.2 SC.10.1.2	Recognize that science has practical and theoretical limitations.
2, 3	SC.9.1.3 SC.10.1.3	Recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent.
2, 3	SC.9.1.4 SC.10.1.4	Conclude that science is a blend of creativity, logic and mathematics.
All activities	SC.9.2.1 SC.10.2.1	Model and exhibit the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity).
3	SC.9.2.2 SC. 10.2.2	Demonstrate ethical practices for science (e.g., established research protocol, accurate record keeping, replication of results and peer review).
3, 4, 5	SC.9.2.3 SC.10.2.3	Apply scientific approaches to seek solutions for personal and societal issues.
4	SC.9.2.4 SC.10.2.4	Properly and safely manipulate equipment, materials, chemicals, organisms and models.
3, 5	SC.9.2.6 SC.10.2.6	Use appropriate technology solutions (e.g., computer, CBL, probe interfaces, software) to measure and collect data; interpret data; analyze and/or report data; interact with simulations; conduct research; and to present and communicate conclusions.
2, 3, 4, 5	SC.9.2.7 SC.10.2.7	Demonstrate science processes within a problem solving setting (e.g., observing, measuring, calculating, communicating, comparing, ordering, categorizing, classifying, relating, hypothesizing, predicting, inferring, considering alternatives and applying).
1, 3, 4	SC.9.2.8 SC.10.2.8	Design, conduct, evaluate and revise experiments (e.g., identify questions and concepts that guide investigations; design investigations; identify independent and dependent variables in experimental investigations; manipulate variables to extend experimental activities; use technology and mathematics to improve investigations and communications; formulate and revise scientific explanations and models using logic and evidence; recognize alternative explanations; communicate and defend a scientific

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		argument).
2, 3, 4	SC.9.3.2 SC.10.3.2	Apply evidence from models to make predictions about interactions and changes in systems.
1, 2	SC.9.4.2	Analyze and explain the principles of genetics (e.g., monohybrid and dihybrid crosses, mutations, genotypes, phenotypes, X and Y chromosomes, multiple alleles, DNA, probability, diversity).
1, 2, 3	SC.10.4.6	Relate the role of DNA analysis to genetic disorders, forensic science, molecular genetics, and biotechnology (e.g., protein synthesis, heredity, cell division, cellular functions).
2, 3	SC.10.4.11	Relate the role of natural selection to the development, diversity and or extinction of a species.
2, 5	SC.9.5.1	Identify the scientific concepts underlying simple technological innovations.
5	SC.10.5.1	Investigate and analyze the interdependence of science and technology.
2, 3, 5	SC.9.5.2	Cite examples of the interdependence of science and technology (e.g., new technologies have lead to development of new scientific knowledge).
2, 3, 5	SC.9.6.3 SC.10.6.3	Describe the impact of cultural, technological, and economic influences on the evolving nature of scientific thought and knowledge.
3, 4, 5	SC.9.6.5 SC.10.6.5	Engage in decision-making activities and actions to resolve science-technology-society issues.
West Virginia Math Content Standards and Objectives – Algebra I		
Activity	Standard	Objective
2, 3	A1.2.2	Solve multi-step linear equations in one variable and apply skills toward solving practical problems.
2	A12.3	Solve multi-step linear inequalities in one variable, interpret the results on a number line and apply the skills toward solving practical problems.
2, 3	A1.2.4	Solve literal equations for a given variable and apply the skills toward solving practical problems.
2, 3, 4	A1.2.17	Add, subtract, multiply and divide simple rational expressions.
West Virginia Reading and Language Arts Content Standards and Objectives – Grades 9 & 10		
Activity	Standard	Objective
All activities	RLA.10.1.4	Employ reading strategies necessary for various reading purposes (e.g., literary experience; information; and task performance).

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All activities	RLA.9.1.5	Locate specific information in text (e.g., main and supporting ideas; specific facts; statistics; definition).
All activities	RLA.10.1.5	Continue to use context clues to establish word meaning (e.g., including words with multiple meanings).
All activities	RLA.9.1.6	Expand the use of various strategies to establish word meanings (e.g., context clues; affixes; multiple meanings).
2, 3	RLA.9.1.7	Recognize and explain the purpose of illustration within a specific text (e.g., pictures; artwork; graphic organizers such as maps - charts - lists - graphs).
All activities	RLA.9.1.11 RLA.10.1.7	Form supportable predictions, opinions, inferences and conclusions based upon text and/or implicit ideas.
All activities	RLA.9.1.12	Expand vocabulary through various literary works.
All activities	RLA.9.2.1 RLA.10.2.1	Address specific writing purposes (e.g., narrative; expository; descriptive; persuasive) by employing writing strategies.
All activities	RLA.9.2.6	Use a clear, logical progression of ideas (e.g., spatial order in a descriptive essay, chronological order in a process essay) to develop a composition that is focused and coherent.
All activities	RLA.9.3.1 RLA.10.3.1	Understand, communicate and follow complex or intricate directions effectively.
All activities	RLA.9.3.2 RLA.10.3.2	Review appropriate classroom communication skills (e.g., asking and answering questions to foster comprehension and communication in the appropriate tone and at the appropriate time).
All activities	RLA.9.3.4	Listen to identify the purpose, make predictions, distinguish fact from opinion and construct meaning from discussion, speech or media.
West Virginia Health Content Standards and Objectives – High School		
Activity	Standard	Objective
3, 5	HE.HS.1.3	Analyze and interpret how public health and social policies, along with government regulations (e.g., local, state, federal, world health organizations), influence health promotion and disease prevention.
2, 4, 5	HE.HS.1.4	Differentiate between the causes of communicable and noncommunicable diseases.
4	HE.HS.1.5	Identify and apply skills to prevent communicable and noncommunicable diseases.
2, 3, 5	HE.HS.2.1	Identify and evaluate resources that provide accurate health information in regard to the National Standards of Health Education.
4	HE.HS.3.2	Recognize and demonstrate the positive effects of nutrition and physical activity on health.

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4, 5	HE.HS.3.3	List examples and explain short and long term impacts of health decisions (e.g., smoking, good diet, wearing seat belts) on the individual, family and community (e.g., lung cancer, heart disease, STDs).
All activities	HE.HS.5.3	Demonstrate a variety of communication skills (e.g., verbal, nonverbal, listening, writing, technology, workplace).
3, 5	HE.HS.6.2	Identify and discuss health concerns that require collaborative decision-making (e.g., sexuality, STD transmission/prevention, refusal skills).
5	HE.HS.6.3	Analyze the effects of potentially harmful decisions that impact health and the effect these decisions have on their family, community and self (ATOD use, STD transmission, pregnancy prevention, teen parenting).
3, 5	HE.HS.7.1	Use written, audio and visual communication methods to express health messages (e.g., posters, reports, role playing).
3, 4, 5	HE.HS.7.2	Demonstrate the ability to adapt health messages to characteristics of a particular audience.
3, 4, 5	HE.HS.7.3	Promote the use of personal, family and community resources in health care situations.